

Form Approved
OMB No. **XXXX-XXXX**
Approval Expires: **XX/XX/XX**

Public reporting burden for this collection of information is estimated to average 24 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to: Chief, Information Policy Branch, PM-223Y, U. S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460, and to: Office of Information And Regulatory Affairs, Office of Management and Budget, Washington, DC 20503. Include the OMB number in any correspondence.

**MACT STANDARDS DEVELOPMENT QUESTIONNAIRE
FOR IRON AND STEEL FOUNDRIES**

I. Instructions.

This questionnaire is to be completed for operations that comprise the **"Iron Foundries"** and **"Steel Foundries"** source categories at your facility. These source categories include all processes that are part of iron or steel foundry operations, such as mold and core making, scrap preparation, melting furnace operations, molten metal transfer, metallurgical processing, metal pouring into molds, castings separation and shakeout, casting finishing, and sand reclamation and disposal. By our definition, an iron or steel foundry is a facility that produces castings from any type of iron or steel. The subject operations are generally conducted under Standard Industrial Classification (SIC) Code 332, Iron and Steel Foundries.

We are requesting information regarding air emissions from your foundry operations, the use of air pollution control (APC) devices in those operations, and their effectiveness in reducing emissions, particularly of hazardous air pollutants (HAPs). The information required is described in Sections II and III of

this questionnaire. A list of HAPs is included as Attachment 1.

Please satisfy this request as completely as possible from existing information. No additional monitoring or emission testing is required by your company to respond to this request.

If you wish to submit the requested information in a different format (computer microdisk, for example), please contact Mr. Jim Maysilles at 919-541-3265 first to ensure that the EPA can process your information in the format you intend to use. If you have any questions regarding this request, please contact Mr. Maysilles.

Return this request along with any additional information to:

Emission Standards Division (MD-13)
U. S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711

Attention: Bruce C. Jordan, Director

II. General Information.

A. Name of facility:

B. Mailing address:

C. Street address of plant:

D. Latitude and longitude of the plant, in degrees and minutes:

E. Names and telephone numbers of contact persons who are able to answer technical questions about this survey:

F. Size of company, to identify small businesses.

Number of employees in the business enterprise that owns this plant, including, where applicable, the parent company and all subsidiaries, branches, and unrelated establishments owned by the parent company:

G. How would you classify your foundry operation?
(Please circle the code numbers that apply.)

Type of operation	Percent of metal poured	Percent of sand <u>processed</u>
1 Sand mold	_____	
1a Green sand drag and cope		_____
1b Green sand flaskless		_____
1c Green sand jolt squeeze		_____
1d Thermosetting system		_____
1e Self-setting system		_____
1f Gas cured system		_____
1g Other: _____		_____

2 Permanent mold	_____	
3 Centrifugal mold	_____	
4 Expendable pattern casting (lost foam process)	_____	
5 Investment casting	_____	
6 Other: _____	_____	

Total tons of metal melted during the
last 12-month period for which you have data: _____

Types of castings shipped: _____

III. Foundry operations, use of air pollution control equipment, and air emission data.

A. Processing information.

Use tables 1 through 16 to describe all foundry equipment and processes at your facility. Give information that is representative of the capacity of the individual items of equipment or processes, not your current production rate. You may use one table to describe a number of equipment items or operations if they are identical.

Provide an identification number for each process. Also, give the identification number of the device that services the process (see section C below, Air pollution control devices). If no device is used, report "None".

B. Pollution prevention.

In tables 1 through 16, identify any emission reduction (pollution prevention) measures used in your operations. Such measures consist of process variations or procedures that have been demonstrated to reduce air emissions. Examples include the use of clean scrap to reduce electric furnace emissions and doing nodularization in a closed vessel or using a nonvolatile material instead of magnesium.

C. Air pollution control devices.

Use tables A through D to describe all air pollution control (APC) devices used to service the foundry equipment or processes. Provide an identification number for each device, and also give the identification numbers of the processes serviced by the device (see section A above, Processing information).

D. Application of control devices.

In all tables, assign an identification number or description to each piece of equipment, process, and APC device so that each APC device can be associated with the equipment and

processes it serves. The number or description can be chosen for your convenience.

E. Permit conditions.

Provide either a summary of air emission conditions to which you are subject or a copy of your air permit.

F. Emission tests.

Enclose summary data from emission tests conducted on all foundry equipment, processes, and APC devices. Include:

- (1) emission rates measured,
- (2) the test method or procedure used,
- (3) information on actual production or processing rates and on process conditions at the time the measurements were made, and
- (4) if the tests were conducted on outlet streams of APC devices, the APC device operating conditions.

Regarding item (3), refer to the cover letter that accompanied this request if you have concerns about protecting the confidentiality of production information.

G. Emission collection inventories.

Report the amount of material collected annually (or over any recent time period) by each APC device; e. g., the particulate matter collected by fabric filters and cartridge collectors and the blowdown generated from wet scrubbers. Report the amount of material produced or treated during the same time period by the processes whose emissions are collected by the device. Also, report the results of any analyses of the materials collected. For wet scrubbers, this data would include the percent solids and analyses of the solid and liquid components of the blowdown.

H. Tables.

Tables 1 through 16 below apply to processes and equipment, tables A through D to air pollution control devices.

Note: No new information need be developed for this survey. If the information requested is not known, simply state "Not known".

1. Furnaces.

Use copies of table 1 to describe furnaces.

2. Scrap preheaters.

Use copies of table 2 to describe preheaters.

3. Metallurgical treatment processes.

Use copies of table 3 to describe ladle metallurgy processes.

4. Chemically bonded sand mold making operations.

Use copies of table 4 to describe mold making operations in which binder systems are used that contain organic chemicals; these types of systems are identified in the first section of the table. Give the rate of consumption of the binder chemicals when the process is operating at full capacity.

5. Green sand mold making operations.

For green sand systems, provide the information requested in copies of table 5.

6. Core making operations.

As in item 4 above, use copies of table 6 to describe core making operations.

7. Mold coating operations.

Use copies of table 7 to describe coating operations. Identify the liquid chemical used in the coating and the percent solids in the slurry and give the rate at which the coating material is consumed when the process is operating at full capacity.

8. Core coating operations.

As in item 7 above, use copies of table 8 to describe these operations.

9. Pouring and cooling lines.

Use copies of table 9 to describe each line.

10. Knockout/shakeout systems.

Use copies of table 10 to describe each system.

11. Sand cooling and bond addition systems.

Use copies of table 11 to describe these systems.

12. Sand reclamation systems.

Use copies of table 12 to describe these systems.

13. Mechanical, electric, and flame finishing operations.

Use table 13 to identify operations used.

14. Heat treatment and chemical finishing operations.

Use table 14 to identify operations used. Also, identify any coating materials or dyes used that may contain HAPs, such as organic solvents, and give the rates at which these materials are consumed when the processes are operating at full capacity.

15. Investment casting operations.

Describe operations unique to investment casting using copies of table 15.

16. Miscellaneous operations.

Use table 16 to describe all other operations that may generate HAP emissions. Do not include maintenance activities in this table.

17. Fabric filters (baghouses) and cartridge collectors.

Complete a copy of table A for each fabric filter or cartridge dust collector system employed that services operations described in tables 1 through 16.

18. Wet scrubbers.

Complete a copy of table B for each wet scrubber system that services foundry operations.

19. Thermal air pollution control devices.

Complete a copy of table C for each unit that processes emissions from foundry operations by a thermal method such as incineration, thermal/catalytic oxidation, and afterburning.

20. Other APC devices.

For each device other than those listed in sections 17 through 19 above that services foundry operations, provide a similar description, including relevant design and operating data, using copies of table D.

TABLE 1. FURNACE DATA. [Page 1 of 2.]

1. Facility ID number (EPA will code this response): _____
2. Number of identical furnaces described in this table: _____
3. Furnace ID number(s) or description: _____
4. Circle the code number for furnace application:
 - 1 Melting 2 Holding
5. Circle the code number for furnace type:
 - 1 Cupola
 - 2 Electric arc
 - 3 Electric induction
 - 4 Other (describe): _____
6. Circle the code number(s) for furnace description:

<u>Cupola</u> :	1 Afterburning used	5 Cold blast
	2 No afterburning	6 Recuperative hot blast
	3 Above charge gas takeoff	7 Nonrecuperative hot blast
	4 Below charge takeoff	
	8 Coke breeze injection	9 Oxygen injection

<u>Electric arc</u> :	10 AC
	11 DC

<u>Electric induction</u> :	12 coreless
	13 channel

14 Other (describe):	_____
----------------------	-------
7. Capacity of **each melting furnace**: _____ tons per hour
8. Capacity of **each holding furnace**: _____ tons
9. Circle the code number(s) for type(s) of metal melted or held and give the percent of the annual total for each type:

1 Stainless or high alloy (>9%) steel:	_____ %
2 Carbon or low alloy steel:	_____ %
3 Cast iron:	_____ %

6 Other (specify): _____ %
_____ %

TABLE 1. FURNACE DATA. [Page 2 of 2.]

For charging/backcharging, melting, and tapping, circle the code number for the type of air pollution control device used.

10. Charging/backcharging: Device ID number: _____

0 No device is used

1 Fabric filter

2 Cartridge collector

3 Wet scrubber

6 Other (describe): _____

11. Melting: Device ID number: _____

0 No device is used

1 Fabric filter

2 Cartridge collector

3 Wet scrubber

6 Other (describe): _____

12. Tapping: Device ID number: _____

0 No device is used

1 Fabric filter

2 Cartridge collector

3 Wet scrubber

6 Other (describe): _____

13. Describe any emission reduction systems or procedures used, such as scrap cleaning, drying, or selection.

14. Have air emission tests been conducted on this furnace?

0 No

1 Yes **[Enclose summary measurement data and melting rate information.]**

15. Additional comments and information: _____

TABLE 2. SCRAP PREHEATER DATA.

1. Facility ID number (**EPA will code this response**): _____
2. Number of identical preheaters described in this table: _____
3. Preheater ID number(s) or description: _____
4. Circle the code number for heating method:
1 Direct gas fired 2 Indirect gas fired 3 Electric
4 Other (describe): _____
5. Circle the code number for scrap transport method:
1 Moving belt 2 Vibratory motion
3 Other (describe): _____
6. Scrap processing capacity **per preheater**: _____ tons per hour

For preheater loading, heating, and discharging, circle the code number for the type of APC device used.

- | | | |
|---|---|---|
| 7. <u>Loading</u> :
Device ID no.: _____
0 None
1 Fabric filter
2 Cartridge collector
3 Wet scrubber
6 Other (describe): _____
_____ | 8. <u>Heating</u> :
Device ID: _____
0 None
1 Fabric filter
2 Cartridge col.
3 Wet scrubber
6 Other: _____
_____ | 9. <u>Discharging</u> :
Device ID: _____
0 None
1 Fabric filter
2 Cartridge col.
3 Wet scrubber
6 Other: _____
_____ |
|---|---|---|

10. Describe any emission reduction systems or procedures used, such as scrap cleaning, drying, or selection.

11. Have air emission tests been conducted on this preheater?
0 No
1 Yes **[Enclose summary measurement data and scrap processing rate information.]**

12. Additional comments and information: _____

TABLE 3. METALLURGICAL TREATMENT DATA.

1. Facility ID number (**EPA will code this response**): _____
2. Number of identical stations described in this table: _____
3. Process ID number(s) or description: _____
4. Circle the code number for type of metal produced:
 - 1 Stainless or high alloy (>9%) steel
 - 2 Carbon or low alloy steel
 - 4 Gray iron
 - 5 Ductile iron
 - 6 Other (specify): _____
5. Circle the code number for the type of vessel in which the process is conducted:
 - 1 Electric arc furnace
 - 2 Electric induction furnace
 - 3 Argon-oxygen decarburization vessel
 - 4 Transfer ladle
 - 5 Other (describe): _____
6. Metal processing capacity **per vessel**: _____ tons per hour
7. Circle the code number for material added or injected:
 - 1 Volatile material (e. g., magnesium for nodularization)
 - 2 Gas (e. g., oxygen for decarburization)
 - 3 Nonvolatile material (e. g., inoculant)
 - 4 Other (describe): _____
8. Circle the code number for the type of APC device used: Device ID number: _____
 - 0 No device is used
 - 1 Fabric filter
 - 2 Cartridge collector
 - 3 Wet scrubber
 - 6 Other (describe): _____
9. Describe any emission reduction systems or procedures used, such as closed ladle or argon blanket.

10. Have air emission tests been conducted on this process?
 - 0 No 1 Yes **[Enclose summary measurement data and metal processing rate information.]**

11. Additional comments and information: _____

TABLE 4. CHEMICALLY BONDED SAND MOLD MAKING DATA.
[Page 1 of 2.]

1. Facility ID number (EPA will code this response): _____
2. Number of identical mold lines described in this table: _____
3. System ID number(s) or description: _____

4. Circle the code number for the type of binder system used:

Thermosetting system:

1 Shell 2 Hot box 3 Warm box 4 Core oil

Self-setting system:

5 Furan self setting 6 Phenolic acid cured
7 Phenolic ester cured 8 Alkyd urethane
9 Phenolic urethane

Gas cured system:

10 Free radical-SO₂ 11 Epoxy-SO₂ 12 Furan-SO₂
13 Phenolic urethane-amine 14 Ester cured phenolic

15 Other (describe): _____

5. Maximum total usage rate **per system** of all non-gas chemicals:
_____ lbs. per hour
6. Maximum catalyst gas usage rate **per system**: _____ lbs. per hour

Note: If chemical usage rate information is not available,
provide the following data:

7. Sand processing capacity **per system**: _____ tons per hour
 8. Binder/sand ratio: _____ lbs. chemicals per ton of sand
 9. Catalyst gas/sand ratio: _____ lbs. gas per ton of sand
10. Circle the code numbers for each process used:
 - 1 Mulling/mixing
 - 2 Mold forming
 - 3 Gas curing (cold box)
 - 4 Oven curing

5 Air curing

6 Other (describe): _____

TABLE 4. CHEMICALLY BONDED SAND MOLD MAKING DATA.
[Page 2 of 2.]

For each process in item 10 used, provide the following data.

11a. Process and code number: Mulling/mixing

Circle the code number for
the type of APC device used: Device ID number: _____

- 0 No device is used
- 1 Fabric filter
- 2 Cartridge collector
- 3 Wet scrubber
- 4 Incinerator
- 6 Other (describe): _____

11b. Process and code number: Mold forming

Circle the code number for
the type of APC device used: Device ID number: _____

- 0 No device is used
- 1 Fabric filter
- 2 Cartridge collector
- 3 Wet scrubber
- 4 Incinerator
- 6 Other (describe): _____

11c. Process and code number: Curing

Circle the code number for
the type of APC device used: Device ID number: _____

- 0 No device is used
- 1 Fabric filter
- 2 Cartridge collector
- 3 Wet scrubber
- 4 Incinerator
- 5 Condenser (e. g., for catalyst gas)
- 6 Other (describe): _____

12. Describe any emission reduction systems or procedures used.

13. Have air emission tests been conducted on these processes?

- 0 No 1 Yes **[Enclose summary measurement data and
relevant processing rate information.]**

Processes tested: _____

14. Additional comments and information: _____

TABLE 5. GREEN SAND MOLD MAKING DATA.

1. Facility ID number (**EPA will code this response**): _____
2. Number of identical mold lines described in this table: _____
3. Line ID number(s) or description: _____
4. Sand processing capacity **per line**: _____ tons per hour
5. Circle the code number for
the type of APC device used: Device ID number: _____

 0 No device is used
 1 Fabric filter
 2 Cartridge collector
 3 Wet scrubber
 4 Incinerator
 6 Other (describe): _____
6. Describe any emission reduction systems or procedures used.

7. Have air emission tests been conducted on this line?

 0 No
 1 Yes [**Enclose summary measurement data
 and sand processing rate information.**]
8. Additional comments and information: _____

TABLE 6. CORE MAKING DATA. [Page 1 of 2.]

1. Facility ID number (**EPA will code this response**): _____
2. Number of identical core lines described in this table: _____
3. System ID number(s) or description: _____

4. Circle the code number for the type of binder system used:

Thermosetting system:

1 Shell 2 Hot box 3 Warm box 4 Core oil

Self-setting system:

5 Furan self setting 6 Phenolic acid cured
7 Phenolic ester cured 8 Alkyd urethane
9 Phenolic urethane

Gas cured system:

10 Free radical-SO₂ 11 Epoxy-SO₂ 12 Furan-SO₂
13 Phenolic urethane-amine 14 Ester cured phenolic

- 15 Other (describe): _____

5. Maximum total usage rate **per system** of all non-gas chemicals:
_____ lbs. per hour

6. Maximum catalyst gas usage rate **per system**: _____ lbs. per hour

Note: If chemical usage rate information is not available,
provide the following data:

7. Sand processing capacity **per system**: _____ tons per hour

8. Binder/sand ratio: _____ lbs. chemicals per ton of sand

9. Catalyst gas/sand ratio: _____ lbs. gas per ton of sand

10. Circle the code numbers for each process used:

1 Mulling/mixing
2 Core forming
3 Gas curing (cold box)
4 Oven curing
5 Air curing
6 Other (describe): _____

TABLE 6. CORE MAKING DATA. [Page 2 of 2.]

For each process in item 10 used, provide the following data.

11a. Process and code number: Mulling/mixing

Circle the code number for
the type of APC device used: Device ID number: _____

- 0 No device is used
- 1 Fabric filter
- 2 Cartridge collector
- 3 Wet scrubber
- 4 Incinerator
- 6 Other (describe): _____

11b. Process and code number: Core forming

Circle the code number for
the type of APC device used: Device ID number: _____

- 0 No device is used
- 1 Fabric filter
- 2 Cartridge collector
- 3 Wet scrubber
- 4 Incinerator
- 6 Other (describe): _____

11c. Process and code number: Curing

Circle the code number for
the type of APC device used: Device ID number: _____

- 0 No device is used
- 1 Fabric filter
- 2 Cartridge collector
- 3 Wet scrubber
- 4 Incinerator
- 5 Condenser (e. g., for catalyst gas)
- 6 Other (describe): _____

12. Describe any emission reduction systems or procedures used.

13. Have air emission tests been conducted on these processes?

- 0 No 1 Yes **[Enclose summary measurement data and
relevant processing rate information.]**

Processes tested: _____

14. Additional comments and information: _____

TABLE 7. MOLD COATING PROCESS DATA.

1. Facility ID number (EPA will code this response): _____
2. Number of identical processes described in this table: _____
3. Process ID number(s) or description: _____
4. Identify the mold making lines described in table 4 that feed this process: _____

5. Coating base type:

- 1 Alcohol 2 Chlorinated hydrocarbon 3 Water
4 Other (specify): _____

6. Percent solids in coating slurry: _____

[Note: If a water base system is used, the remainder of this table need not be completed.]

7. Coating drying method:

- 1 Oven 2 Air-dried 3 Light-off 4 Other: _____

8. Specific coating base liquid (e. g., isopropyl alcohol):

9. Maximum coating usage rate **per process**: _____ lbs. per hour

For mixing, application, and drying, circle the code number for the type of APC device used:

10. Mixing:

11. Application:

12. Drying:

Device ID no.: _____

Device ID: _____

Device ID: _____

0 None

0 None

0 None

1 Fabric filter

1 Fabric filter

1 Fabric filter

2 Cartridge collector

2 Cartridge col.

2 Cartridge col.

3 Wet scrubber

3 Wet scrubber

3 Wet scrubber

4 Incinerator

4 Incinerator

4 Incinerator

6 Other (describe):

6 Other:

6 Other:

13. Describe any emission reduction systems or procedures used.

14. Have air emission tests been conducted on this process?

0 No

1 Yes

[Enclose summary measurement data and relevant processing rate information.]

Processes tested: _____

15. Additional comments and information: _____

TABLE 8. CORE COATING PROCESS DATA.

1. Facility ID number (**EPA will code this response**): _____
2. Number of identical processes described in this table: _____
3. Process ID number(s) or description: _____
4. Identify the core making lines described in table 6 that feed this process: _____

5. Coating base type:

- 1 Alcohol 2 Chlorinated hydrocarbon 3 Water
4 Other (specify): _____

6. Percent solids in coating slurry: _____

[Note: If a water base system is used, the remainder of this table need not be completed.]

7. Coating drying method:

- 1 Oven 2 Air-dried 3 Light-off 4 Other: _____

8. Specific coating base liquid (e. g., isopropyl alcohol):

9. Maximum coating usage rate **per process**: _____ lbs per hour

For mixing, application, and drying, circle the code number for the type of APC device used:

10. Mixing:

11. Application:

12. Drying:

Device ID no.: _____

Device ID: _____

Device ID: _____

0 None

0 None

0 None

1 Fabric filter

1 Fabric filter

1 Fabric filter

2 Cartridge collector

2 Cartridge col.

2 Cartridge col.

3 Wet scrubber

3 Wet scrubber

3 Wet scrubber

4 Incinerator

4 Incinerator

4 Incinerator

6 Other (describe):

6 Other:

6 Other:

13. Describe any emission reduction systems or procedures used.

14. Have air emission tests been conducted on this process?

0 No

1 Yes

[Enclose summary measurement data and relevant processing rate information.]

Processes tested: _____

15. Additional comments and information: _____

TABLE 9. POURING AND COOLING LINE DATA. [Page 1 of 2.]

1. Facility ID number (EPA will code this response): _____
2. Number of identical lines described in this table: _____
3. Line ID number(s) or description: _____

4. Identify the sand mold making systems described
in tables 4 and 5 that feed this line:

5. Circle the code number for the type of mold system:
 - 1 Green sand only
 - 2 Green sand plus chemically-bonded sand cores
 - 3 Chemically-bonded sand only
 - 4 Shell mold system
 - 5 Expendable pattern (lost foam) process
 - 6 Silicate molds
 - 7 Centrifugal mold
 - 8 Permanent mold
 - 9 Investment process
 - 10 Other (describe): _____
6. If sand system, the sand/metal ratio: _____
7. Circle the code number(s) for type(s) of metal poured
and give the percent of the annual total for each type:

1 Stainless or high alloy (>9%) steel:	_____	%
2 Carbon or low alloy steel:	_____	%
4 Gray iron:	_____	%
5 Ductile iron:	_____	%
6 Other (specify): _____	_____	%
	_____	%
8. Capacity **per line** in terms of metal poured: _____ tons per hour

TABLE 9. POURING AND COOLING LINE DATA. [Page 2 of 2.]

For the pouring and cooling sections of the line, circle the code number for the type of APC device used.

9. Pouring:

Device ID number: _____

0 None

1 Fabric filter

2 Cartridge collector

3 Wet scrubber

6 Other (describe):

10. Cooling:

Device ID number: _____

0 None

1 Fabric filter

2 Cartridge collector

3 Wet scrubber

6 Other:

11. Describe any emission reduction systems or procedures used.

12. Have air emission tests been conducted on this line?

0 No

1 Yes [Enclose summary measurement data and
metal pouring rate information.]

13. Additional comments and information: _____

TABLE 10. KNOCKOUT/SHAKEOUT SYSTEM DATA.

1. Facility ID number (**EPA will code this response**): _____
2. Number of identical systems described in this table: _____
3. System ID number(s) or description: _____

4. Identify the pouring and cooling lines described in table 8 that feed this system:

5. Circle the code number for the system type:
 - 1 Shaker deck or table
 - 2 Rotary separator
 - 3 Vibratory conveyor
 - 4 High-frequency vibration
 - 5 Impact cleaning (e. g., shot blast)
 - 6 Other (describe): _____
6. Sand or shell fragment processing capacity **per system**:
_____ tons per hour
7. Circle the code number for the type of APC device used: Device ID number: _____
 - 0 No device is used
 - 1 Fabric filter
 - 2 Cartridge collector
 - 3 Wet scrubber
 - 6 Other (describe): _____
8. Describe any emission reduction systems or procedures used.

9. Have air emission tests been conducted on this system?
 - 0 No
 - 1 Yes **[Enclose summary measurement data and sand/shell processing rate information.]**
10. Additional comments and information: _____

TABLE 11. SAND COOLING AND BOND ADDITION SYSTEM DATA.

1. Facility ID number (EPA will code this response): _____
2. Number of identical systems described in this table: _____
3. System ID number(s) or description: _____

4. Sand processing capacity **per system**: _____ tons per hour

For cooling and bond addition operations, circle the code number for the type of APC device used:

- | | |
|------------------------------|------------------------------|
| 5. <u>Cooling</u> : | 6. <u>Bond addition</u> : |
| Device ID number: _____ | Device ID number: _____ |
| 0 None | 0 None |
| 1 Fabric filter | 1 Fabric filter |
| 2 Cartridge collector | 2 Cartridge collector |
| 3 Wet scrubber | 3 Wet scrubber |
| 6 Other (describe):
_____ | 6 Other (describe):
_____ |

6. Describe any emission reduction systems or procedures used.

7. Have air emission tests been conducted on this system?

- 0 No
- 1 Yes **[Enclose summary measurement data
and sand processing rate information.]**

8. Additional comments and information: _____

TABLE 12. SAND RECLAMATION SYSTEM DATA.

1. Facility ID number (EPA will code this response): _____
2. Number of identical systems described in this table: _____
3. System ID number(s) or description: _____

4. Circle the code number for the type of system:
 - 1 Mechanical
 - 2 Thermal
 - 3 Wet reclamation
 - 4 Other (describe): _____

5. Sand processing capacity **per system**: _____ tons per hour
6. Circle the code number for the type of APC device used: Device ID number _____
 - 0 No device is used
 - 1 Fabric filter
 - 2 Cartridge collector
 - 3 Wet scrubber
 - 4 Incinerator
 - 6 Other (describe): _____
7. Describe any emission reduction systems or procedures used.

8. Have air emission tests been conducted on this system?
 - 0 No
 - 1 Yes **[Enclose summary measurement data and sand processing rate information.]**
9. Additional comments and information: _____

TABLE 13. MECHANICAL, ELECTRIC, AND FLAME FINISHING DATA.

1. Facility ID number (**EPA will code this response**): _____
2. Number of identical treatment stations described in this table: _____
3. Process ID number(s) or description: _____
4. Circle the code number for the type of process:
 - 1 Cutoff
 - 2 Grinding
 - 3 Shot blasting
 - 4 Grit blasting
 - 5 Electric arc
 - 6 Flame or torch
 - 7 Other (describe): _____
5. Casting processing capacity **per system**: _____ tons per hour
6. Circle the code number for the type of APC device used: Device ID number: _____
 - 0 No device is used
 - 1 Fabric filter
 - 2 Cartridge collector
 - 3 Wet scrubber
 - 6 Other (describe): _____
7. Describe any emission reduction systems or procedures used.

8. Have air emission tests been conducted on this process?
 - 0 No
 - 1 Yes **[Enclose summary measurement data and casting processing rate information.]**
9. Additional comments and information: _____

TABLE 14. HEAT TREATMENT AND CHEMICAL FINISHING DATA.

1. Facility ID number (EPA will code this response): _____
2. Number of processes described in this table: _____
3. Process ID number(s) or description: _____
4. Circle the code number for the type of process:
 - 1 Heat treatment (e. g., annealing, stress relief)
 - 2 Coating (e. g., painting or varnishing)
 - 3 Dye application (e. g., penetrant)
 - 4 Other (describe): _____
5. Casting treatment capacity **per process**: _____ tons per hour
6. Circle the code number for the type of APC device used: Device ID number: _____
 - 0 No device is used
 - 1 Fabric filter
 - 2 Cartridge collector
 - 3 Wet scrubber
 - 4 Incinerator
 - 6 Other (describe): _____

Identify materials that contain HAPs. Give the rate **per process** at which these materials are consumed at full operating capacity.

7. Material	8. Maximum consumption rate, lbs. per hour	9. Known HAPs	10. Concentration in material, percent
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

11. Describe any emission reduction systems or procedures used.

12. Have air emission tests been conducted on this process?

- 0 No
- 1 Yes [Enclose summary measurement data
and relevant processing rate information.]

13. Additional comments and information: _____

TABLE 15. INVESTMENT CASTING OPERATIONS DATA.

1. Facility ID number (EPA will code this response). _____

Circle the code number for each process used at your facility and indicate whether or not any HAPs are used in those processes.

2. Process used:

3. HAPs are present:

1	Die coating	1	No	2	Yes
2	Wax melting	1	No	2	Yes
3	Wax Injection	1	No	2	Yes
4	Acid leaching of soluble wax cores	1	No	2	Yes
5	Pattern assembly	1	No	2	Yes
6	Pattern cleaning and etching	1	No	2	Yes
7	Cluster dipping and coating	1	No	2	Yes
8	Mold insulation	1	No	2	Yes
9	Wax meltout	1	No	2	Yes
10	Wax burnout/shell preheating	1	No	2	Yes
11	Knockout	1	No	2	Yes
12	Salt bath removal of shell materials	1	No	2	Yes
13	Other (describe):	1	No	2	Yes

For each process in which HAPs are used or present, identify the HAPS, give the amounts used when the process is operating at full capacity, and identify the APC device employed for that process, if any.

<u>4.</u> Processes using HAPs	<u>5.</u> HAPs present	<u>6.</u> Amounts used, lbs. per hour	<u>7.</u> APC device used
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

8. Describe any emission reduction systems or procedures used.

9. Have air emission tests been conducted on these processes?

0 No

1 Yes [Enclose summary measurement data
and relevant processing rate information.]

Processes tested: _____

10. Additional comments and information: _____

TABLE 16. MISCELLANEOUS OPERATIONS DATA.

Provide the information requested for all other operations (such as cleaning) other than maintenance activities in which HAPs are used or are present.

64444444444444444444L444444444444444444L4444444444444444L4444444444444447					
5 Operation	*	HAPs used	*Amounts used *	Type and ID	5
5	*		* at full	* number of	5
5	*		* capacity,	* device used	5
5	*		*lbs. per hour*		5
: 4444444444444444P444444444444444444P4444444444444444P4444444444444444<					
5	*		*	*	5
5	*		*	*	5
5	*		*	*	5
5	*		*	*	5
K)))))))))	3)))))))))	3)))))))))	3)))))))))	3)))))))))	M)))))))))
5	*		*	*	5
5	*		*	*	5
5	*		*	*	5
5	*		*	*	5
K)))))))))	3)))))))))	3)))))))))	3)))))))))	3)))))))))	M)))))))))
5	*		*	*	5
5	*		*	*	5
5	*		*	*	5
5	*		*	*	5
K)))))))))	3)))))))))	3)))))))))	3)))))))))	3)))))))))	M)))))))))
5	*		*	*	5
5	*		*	*	5
5	*		*	*	5
5	*		*	*	5
K)))))))))	3)))))))))	3)))))))))	3)))))))))	3)))))))))	M)))))))))
5	*		*	*	5
5	*		*	*	5
5	*		*	*	5
5	*		*	*	5
9444444444444444N444444444444444444N4444444444444444N4444444444444448					

Describe any emission reduction systems or procedures used.

Operations on which air emission tests have been conducted:

Enclose summary emission data and relevant processing rate information.

Additional comments and information:

TABLE A. FABRIC FILTER/CARTRIDGE COLLECTOR DESCRIPTION.

1. Facility ID number (**EPA will code this response**): _____
2. Device description and ID number: _____
3. Design efficiency for this application: _____ percent
4. Circle the code number for device type:
 1 Fabric filter **2** Cartridge collector
5. Circle the code number for pressure mode of operation:
 1 Positive pressure **2** Negative pressure
6. Gas flow rate: _____ acfm
7. Gas inlet temperature: _____ °F
8. Referring to the operations described in tables 1 through 16, identify each process served by this device.

If furnaces are served, distinguish between charging/back charging, melting, and tapping. Similarly, if scrap preheaters, pouring and cooling lines, or mold and core making and coating processes are served, identify the processes serviced.

9. Amount of particulate matter collected by this device:
 _____ tons during _____ hours of operation.
10. Has this material been analyzed?
 0 No **1** Yes [**Enclose analysis.**]
11. Amount of material processed that generates the material collected (e. g., for furnace emissions, amount of metal melted while the material was collected):

12. Have emission tests been conducted on this device?
 0 No
 1 Yes [**Enclose summary measurement data and relevant processing rate information.**]

13. Additional comments and information: _____

TABLE B. WET SCRUBBER DESCRIPTION. [Page 1 of 2.]

1. Facility ID number (EPA will code this response): _____
2. Device description and ID number: _____
3. Design collection efficiency: _____ percent
4. Basis for efficiency (particulate matter, gas): _____
5. Circle the code number for scrubber type:
 - 1 Venturi
 - 2 Sieve tray
 - 3 Vertical packed bed
 - 4 Horizontal packed bed
 - 5 Other (specify): _____
6. Circle the code number for pressure mode of operation:
 - 1 Positive pressure
 - 2 Negative pressure
7. Pressure drop: _____ inches water column
8. Gas flow rate: _____ acfm
9. Gas inlet temperature: _____ °F
10. Liquid to gas ratio: _____ gallons per 1,000 acf
11. Referring to the operations described in tables 1 through 16, identify each process served by this device.

If furnaces are served, distinguish between charging/back charging, melting, and tapping. Similarly, if scrap preheaters, pouring and cooling lines, or mold and core making and coating processes are served, identify the processes serviced.

12. Blowdown produced by this device:

_____ cubic yards during _____ hours of operation.
13. Percent solids in blowdown: _____
14. Has this material (solids and/or liquid) been analyzed?

0 No 1 Yes **[Enclose analysis.]**

TABLE B. WET SCRUBBER DESCRIPTION. [Page 2 of 2.]

15. Amount of material processed that generates the material collected (e. g., for furnace emissions, amount of metal melted while the material was collected):

_____	_____
_____	_____

16. Have emission tests been conducted on this device?

0 No

1 Yes [Enclose summary measurement data
and relevant processing rate information.]

17. Additional comments and information: _____

TABLE C. THERMAL AIR POLLUTION CONTROL DEVICE DESCRIPTION.

1. Facility ID number (**EPA will code this response**): _____
2. Device description and ID number: _____
3. Design efficiency for this application: _____ percent
4. Basis for efficiency (e. g., carbon monoxide destruction, volatile organic compound destruction):

5. Excess air: _____ percent
6. Residence time: _____ seconds

[Residence time is equal to the volume of the combustion chamber divided by the gas volumetric flow rate at combustion conditions.]
7. Combustion temperature: _____ °F
8. Other relevant design and operating data: _____

9. Referring to the operations described in tables 1 through 16, identify each process served by this device.

If furnaces are served, distinguish between charging/back charging, melting, and tapping. Similarly, if scrap preheaters, pouring and cooling lines, or mold and core making and coating processes are served, identify the processes serviced.

10. Have emission tests been conducted on this device?

0 No
1 Yes [**Enclose summary measurement data and relevant processing rate information.**]
11. Additional comments and information: _____

TABLE D. OTHER APC DEVICE DESCRIPTION.

1. Facility ID number (**EPA will code this response**): _____
2. Device description and ID number: _____
3. Design efficiency for this application: _____ percent
4. Basis for efficiency: _____
5. Relevant design and operating data:

6. Referring to the operations described in tables 1 through 16, identify each process served by this device.

If furnaces are served, distinguish between charging/back charging, melting, and tapping. Similarly, if scrap preheaters, pouring and cooling lines, or mold and core making and coating processes are served, identify the processes serviced.

7. Amount of material collected by this device during a specified time period, if applicable:

8. Has this material been analyzed?

0 No 1 Yes [Enclose analysis.]
9. Amount of material processed that generates the material collected (e. g., for furnace emissions, amount of metal melted while the material was collected):

10. Have emission tests been conducted on this device?

0 No
**1 Yes [Enclose summary measurement data
 and relevant processing rate information.]**
11. Additional comments and information: _____
